



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,358	01/22/2004	Shin Koike	247071USDIV	3263
22850	7590	03/03/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER RAE, CHARLESWORTH E	
			ART UNIT	PAPER NUMBER
			1611	
			NOTIFICATION DATE	DELIVERY MODE
			03/03/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No. 10/761,358	Applicant(s) KOIKE ET AL.	
	Examiner Charleswort Rae	Art Unit 1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's arguments, filed 1/2/08, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of actions being applied to the instant application.

The finality of the Office action mailed 10/17/07 is withdrawn.

Status of the Claims

Claims 6-13 are currently pending in this application.

Claims 1-5, and 14-22 are canceled.

Claim rejections – 35 USC 112 – Second Paragraph

Claim 6 is found to be indefinite for failing to recite subject matter that is deemed to be essential in practicing the instant claimed invention. Specifically, claim 6 is directed to a food product comprising an oil composition and food, but fails to concisely state the specific essential amounts or relative amounts of the oil composition or food component in the final food product, or the essential specific or relative amounts of monoglyceride, diglyceride, and triglyceride in the final food product to reasonably establish a meaningful relationship between the amounts of omega-3 acylated diglycerides and monoenoic acylated diglycerides in the oil composition as recited in claim 6 and the critical amounts necessary for practice of the claimed food product. In the absence of a connection between the amounts of oil composition and/or food in the final food product, someone of skill in the art would not be able to reasonably determine

Art Unit: 1615

the metes and bounds of the instant claimed subject matter. Thus, claim 6 is found to be indefinite for lacking essential subject matter.

Claims 7-13 are rejected for the same reason as these claims fail to correct the deficiency of the claim from which they depend.

Claim rejections – 35 USC 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartnett (US Patent 4,250,202), in view of Igarashi (US Patent 6,159,507), and further in view of Nomura et al. (US Patent 5,160,759).

Hartnett (US Patent 4,250,202) teaches cakes comprising mono and diglycerides of fat forming fatty acids and polyethoxylated (20) sorbitan monostearate blends as

Art Unit: 1615

emulsifier (col. 1, lines 5-19), and shortenings which are in general triglyceride oils or fats derived from animal sources (col. 3, lines 12-23; and col. 4, Table 2). Claim 6 recites the term "[a] food product," which is satisfied by the teaching of a cake by Harnett (col. 1, lines 5-19; and col. 4, Tables 1-3). Claim 6 recites the term "*an oil composition and food*," which given its broadest reasonable possible interpretation, is satisfied by the teaching of Harnett of a cake (= food) comprising a hydrated emulsifier of a mixture of mono and diglycerides (see col. 4, Tables 1-3), shortenings of triglyceride oils or fats derived from animal sources (col. 3, lines 12-23; and col. 4, Table 2), and unsaturated fatty acid esters, wherein the unsaturated fatty acid esters that may be used are in minor amounts include the glycerol esters of oleic, lineolic, vaccenic, liconic, and catoleic acids, as well as other unsaturated fatty acids which may contain about C12-C22 carbon atoms, constitute the functional equivalent of an oil composition (col. 2, lines 37-45). The terms "monoglyceride," "diglyceride," and "triglyceride" as recited in claim 6 are also taught by Harnett (see col. 4, Tables 1-3; col. 3, lines 12-23; and col. 4, Table 2). Harnett teaches that any saturated fatty acid containing from C8 to about C24 carbon atoms may be used in conjunction with mixtures of minor amounts of unsaturated fatty acids or by preparing the monoglyceride and diglyceride fatty acid esters via transesterification, glycerolysis, or direct esterification of glycerin (co. 2, lines 37-54). Harnett teaches that transesterification is generally accomplished by mixing sufficient glycerin with a triglyceride so that during the reaction the mol ratio of glycerin to the fatty acid is adjusted to achieve the desired amount of monoglyceride with residual triglycerides and diglycerides (co. 2, lines 37-54). Based on the

Art Unit: 1615

transesterification method taught by Harnett, a diglyceride glycerol ester of oleic acid would reasonably result in the formation of a diglyceride comprising monoenoic acyl groups of oleic acid, while a diglyceride glycerol ester of an unsaturated fatty acid having about C12 to C22 carbon atoms would reasonably result in the formation of a diglyceride containing unsaturated fatty acid acyl groups (co. 2, lines 37-54); however, Harnett is silent with respect to fish and marine oils and omega-3 unsaturated acylated diglycerides (col. 3, lines 12-23; and col. 4, Table 2). Claim 6 recites the term "*wherein a content of ... monoenoic acyl groups in acyl groups constituting the diglyceride*" which overlaps with the teaching of Harnett specifically with respect to the monoenoic acyl group constituent of the diglyceride in view of above referenced teaching of Harnett of a diglyceride glycerol ester of oleic acid; transesterification of a diglyceride glycerol ester of oleic acid would reasonably result in the formation of a diglyceride comprising monoenoic acyl groups of oleic acid (co. 2, lines 37-54). Although Harnett is silent with the regards omega-3 unsaturated fatty acids, Harnett teaches diglyceride glycerol esters of unsaturated fatty acid having about C12 to C22 carbon atoms (col. 2, lines 37-45). Based on the esterification method taught by Harnett, a diglyceride glycerol ester of an unsaturated fatty acid having about C12 to C22 carbon atoms would reasonably result in the formation of a diglyceride containing unsaturated fatty acid acyl groups (co. 2, lines 37-54). Claim 6 recites the term "*at most 5% by weight of a free fatty acid,*" which given its broadest reasonable possible interpretation is construed to read on a cake composition comprising no free fatty acid. To the extent that claim 6 does not recite a specific amount of the oil composition in the final food product, or specific

Art Unit: 1615

amounts of triglycerides, monoglycerides, and diglycerides comprising omega-3 acyl groups and monoenoic acyl groups in the final food product, claim 6 is reasonably construed to overlap with the cake taught by Harnett with respect to the triglyceride, monoglyceride, and diglyceride comprising monenoic acyl groups embodiments. Claim 11 recites the term "baked food," which is reasonably satisfied by the teaching of Harnett of a cake that impliedly has to be baked prior to being consumed.

Unlike instant claim 6, Harnett does not teach diglycerides comprising omega-3 unsaturated acyl groups or diglycerides comprising the claimed ratio of omega-3 polyunsaturated acyl groups to monoenoic acyl groups constituting the diglycerides as claimed in instant claim 6.

Igarashi (US Patent 6,159,507) teach food compositions comprising an omega-6/omega-3 unsaturated fatty acid balance modifier and at least one unsaturated fatty acid (col. 2, lines 49-53). Igarashi teaches that although it has been confirmed that various fatty acids such as omega-6 fatty acids (including linoleic acid, dihomo-gamma-linolenic acid, and arachidonic acid) and omega-3 fatty acids (including alpha-linolenic acid, eicosapentaenoic acid and docosahexaenoic acid) exhibit different physiological actions, what is important is that these two series of unsaturated fatty acids mutually have a potent effect on the physiological action of the other, ..., and the ratio of omega-3 and omega-6 unsaturated fatty acids in the body reflects that in the diet (col. 1., lines 31-42). Igarashi teaches that foods have been developed to which have been added omega-3 unsaturated fatty acids such as EPA and DHA (col. 1, lines 62-66). Igarashi teaches that there is a strong desire to develop a safe substance that suitably adjusts

Art Unit: 1615

the ratio of omega-6 unsaturated fatty acids and omega-3 unsaturated fatty acids in the body in order to maintain homeostasis of the body as well as prevent disease (col. 2, lines 41-45).

Nomura et al. (US Patent 5,160,759) teach oil-in-water emulsion suitable for creams (such as cream for coffee, whip cream or ice cream), condiments (such as dressing or mayonnaise) and drinks (abstract and col. 1, lines 9-13), wherein the oil phase comprises an edible oil composition comprising 10 to 90 percent by weight, based on the entire oils and fats of the emulsion, of a diglyceride mixture containing 70 percent by weight or more of the fatty acid moiety being unsaturated fatty acids having 16 to 22 carbon atoms (abstract, col. 1, line 61 to col. 2, line 14; and col. 13, Table 4). The terms "mayonnaise" as recited in claim 9 and "a cream" as recited in claim 10 are satisfied by the teaching of Nomura et al. (col. 1, lines 9-13). Nomura et al. teach that the glyceride mixture contained in the oil phase comprises diglycerides in an amount of from more than 30 percent by weight to 100 percent by weight, monoglycerides in a weight ratio of 0 to 1/20 based on the diglycerides and the balance of triglycerides, wherein the glyceride mixture have a melting point of 35 degrees centigrade or below (col. 2, lines 15-21). The ratio of triglyceride/diglyceride/ monoglyceride recited in claim 6 is construed to overlap with the teaching of Nomura et al. of an edible oil composition, for example, comprising diglycerides in an amount of from more than 30 percent by weight to 100 percent by weight, monoglycerides in a weight ratio of 0 to 1/20 based on the diglycerides and the balance of triglycerides (col. 2, lines 15-21). Nomura et al. teach a composition derived from rapeseed oil comprising different weight ratios of

Art Unit: 1615

monoglyceride, diglyceride, triglyceride (col. 9 to 12, Tables 1-3); in one embodiment the purified residue of a transesterified rapeseed oil contained 19.4% triglyceride, 79.6% diglycerides and 1.0% monoglycerides (col. 14, lines 35-45). Based on the teaching of Nomura et al. teach that preferably the diglycerides contain unsaturated fatty acid moieties having C16-C22 carbon atoms in an amount of 70 percent by weight or larger, based on the entire acid moieties of the diglycerides are preferred (col. 2, lines 44-57), coupled with the teaching of a method of transesterification exemplifying rapeseed oil as the starting material (col. 14, lines 35-45), an artisan skilled in the art would predict the oil composition taught by Nomura et al. (col. 14, lines 35-45) to reasonably overlap with the claimed range of "15 to 89.5% by weight" of the content of omega-3 unsaturated acyl groups having at least 20 carbon atoms constituting the diglyceride and "about 10 to 84.5% by weight" of monoenoic acyl groups constituting the diglyceride as recited in claim 6.

Applicant's assertion of surprising results achieved in practicing the instant claimed invention by employing known methods of transesterification using known oils and fats as starting materials to arrive at the oil composition as claimed (see specification, pages 4, line 15 to page 11, lines 16; see especially Example 3, page 6, last para to page 7, line 15 and page 8, last para. to page 9, line 5) is not found to be persuasive in view of the general state of the art as evidenced by the following: 1) ice-cream coatings comprising at least 30 wt. %, preferably 50-90%, of diglycerides comprising saturated fatty acid residues and unsaturated fatty acid residues, wherein the fatty acids are at least C16 atoms, preferably oleic acid, are known in the art as

Art Unit: 1615

evidenced by Cain et al. (see below discussion under Prior Art of Record of US Patent 5,891,495; col. 1, lines 31-44 and col. 2, lines 4-9); 2) diglycerides esters adapted for use in and on food preparations, and which can feasible be produced, in the form of substantially pure compounds or components of mixed glycerides, from natural fats and oils are known in the art as evidenced by Feuge et al. (see below discussion under Prior Art of Record of US Patent 2,874,175); 3) triglyceride comprising omega-3 acyl groups and monoenoic acyl groups are known in the art as evidenced below by Stout et al. (see below discussion under Prior Art of Record of US Patent 5,149,851; col. 2, lines 5-15); and 4) transesterification methods for preparing monoglycerides, diglycerides, and triglycerides using natural oils and fats as evidenced by applicants disclosure (see specification, page 8, last para to page 9, line 5) and further evidenced by Yamada et al. (see below discussion under Prior Art of Record of US Patent 6,261,812), Shoichi et al. (see below discussion under Prior Art of Record of JP 63104917, abstract only), and Taconi (see below discussion under Prior Art of Record of US Patent 6,274,751).

Based on the teaching of Iagashi of the need to have a balance of omega-6 unsaturated fatty acids and omega-3 unsaturated fatty acids, someone of skill in the art would have been motivated to modify the teaching of Hornett of a diglyceride glycerol ester of an unsaturated fatty acid having about C12 to C22 carbon atoms and monoenoic acyl groups to create the instant inventive concept of diglycerides comprising omega-3 unsaturated acyl groups and monoenoic acyl groups unsaturated C12-C22 unsaturated fatty acid diglycerides in order improve the nutritional value of the cake composition (co. 2, lines 37-54)

Thus, someone of skill in the art at the time the instant invention was made would have found it obvious to create the instant claimed invention with reasonable predictability.

Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartnett (US Patent 4,250,202), in view of Igarashi (US Patent 6,159,507), and further in view of Nomura et al. (US Patent 5,160,759), in further view of Brown et al. (5,288,619), in further view of Maurizio Ciani (Maurizio Ciani. Wine vinegar production using base wines made with different yeast species. J. Sci. food Agric. 1998; 78: 290-294 (**already made of record**), in further view of Young et al. (US Patent 5,085,884), and in further view of Volpenhein (US Patent 4,263,216).

The above discussions of Harnett, Igarashi and Nomura et al., and the general state of the art in connection with the rejection under 103(a) are incorporated by reference.

Harnett, Igarashi and Nomura et al. do not teach wine vinegar, potato chips, or salad dressings as claimed in claims 7, 8, 12, and 13.

Brown et al. (5,288,619) teach a transesterified di and triglyceride product having an esterified saturated fatty acid content of less than 3.5 weight percent may be used in a wide variety of food products, such as liquid margarine or cooking oils, **mayonnaise and salad dressings**; instant claim 7 recites the limitation "*wherein the food product is a salad dressing.*"

Maurizio Ciani. Wine vinegar production using base wines made with different yeast species. J. Sci. food Agric. 1998; 78: 290-294 (**already made of record**) teaches **wine vinegar** is generally recognized to have a higher organoleptic value in comparison with other vinegars (page 290, column 1, first paragraph); instant claim 8 recites the limitation "*wine vinegar*."

Volpenhein (US Patent 4,263,216) teaches that the unique melting characteristics of cocoa butter of the invention makes it suitable for use in confectionery products, especially **chocolates** (column 1, line 35); instant claim 12 recites the limitation "*wherein the food product is chocolate*."

Young et al. (US Patent 5,085,884) teach reduced calorie **potato chips** wherein a fat composition is applied to the surface of a potato chip (abstract); the nondigestible fat component comprises a nondigestible oil and preferably low levels of certain solid polyol fatty acid polyesters having ester groups comprising combinations of unsaturated (C12 or higher) and/or short chain (C2-C12) saturated fatty acid radicals and long chain (C20 or higher) saturated fatty acid radicals (abstract).

Based on the teaching of Iagashi of the need to have a balance of omega-6 unsaturated fatty acids and omega-3 unsaturated fatty acids, someone of skill in the art would have been motivated to combine the teachings of the above cited references to create the instant inventive concept of diglycerides comprising omega-3 unsaturated acyl groups and monenoic acyl groups unsaturated C12-C22 unsaturated fatty acid diglycerides in order improve the nutritional value of the cake composition (co. 2, lines 37-54)

Art Unit: 1615

Thus, someone of skill in the art at the time the instant invention was made would have found it obvious to create the instant claimed invention with reasonable predictability.

Relevant Art of Record

The below cited art made of record and relied upon are considered pertinent to applicant's invention.

Cain et al. (US Patent 5,891,495) teach ice-cream coating fats based on diglycerides comprising at least 30 wt. %. preferable 50-90 wt. %, of diglycerides, wherein the diglycerides have an saturated fatty acid residue and unsaturated fatty acid residue of 10-25 wt. % (col. 1, lines 31-44), wherein the diglycerides are derived from fatty acid residues with C12-C22 atoms (for the saturated residues) and acids having at least C16 atoms, preferably C18 atoms, in particular oleic acid (col. 2, lines 4-9). Cain et al. disclose that no composition has been disclosed that is based on diglycerides, which is suitable as an ice-cream coating fat (col. 1, lines 17-18). Also, Cain et al. teach oils, including high oleic-safflower oil and rapeseed oil (col. 41-44).

Feuge et al. (US Patent 2,874,175) teach diglyceride esters adapted for use in and on food preparations, and which can feasible be produced, in the form of substantially pure compounds or components of mixed glycerides, from natural fats and oils (col. 1, line 70 to col. 2, line 44). Feuge et al. also teach that whether the fatty acid acyls are saturated or unsaturated the diglyceride esters retain their property of forming highly viscous liquids, which makes it possible to prepare such liquids having either high

or low melting points and freezing points by varying the proportion of saturated to unsaturated fatty acids that are combined to form the compounds (col. 2, lines 23-40).

Shoichi et al. (JP 63104917, already made of record by applicant; abstract only) teach an oral administration composition containing 0.1-40 wt. % , preferably 1-20 wt%, based on oral administration composition of a diglyceride of C18-C24 fatty acid containing at least two double bonds (preferably linoleic acid, linolenic acid or eicosapentaenoic acid), wherein the glyceride composition preferably has $\geq 60\%$ diglyceride and the rest of mono- and triglycerides (abstract).

Sato et al. (US Patent 5,686,131) teach polyunsaturated fatty acids including linoleic acid, arachidonic acid, eicosapentaenoic acid (EPA) and docosahexanoic acid (DHA) (col. 6, lines 54-57). Sato et al. teach a triglyceride mixture containing omega-3 series fatty acid such as EPA or DHA are preferred as raw material because of the effect on physiologic activities such as thrombosis preventing action (col. 6, lines 54-61). As sources for a off flavor, polyunsaturated fatty acids (n=3 or greater) rich in tri or polyenoic acids are more troublesome than monoenoic acids (n=1) such as oleic acid and dienoic acids (such as linoleic acid) (col. 6, line 64 to col. 7, line 1). Sato et al. teach that the ratio of the base oil or fat consisting of polyunsaturated fatty acid residual groups to the base oil or fat consisting of the saturated fatty acid residual groups is critical to achieving an oxidative stabilizing effect and off flavor inhibiting effect (col. 9, lines 15-24). Sato et al. teach no particular limitation is imposed on the polyunsaturated fatty acid base oil or fat as long as it is an oil or fat containing polyunsaturated fatty acid residual groups in a proportion of at least 20% (col. 6, lines 40-43). Sato et al. teach that

Art Unit: 1615

irrespective of the origin or source of the oil or fat, an oil or fat in which the content of tri or polyenoic acid residual groups has been increased by fractionation or another method can also be employed, in particular when applied to fish oils since fish oils contain useful fatty acids (such as EPA and DHA) at relatively high concentrations (col. 7, lines 29-33).

Shoichi et al. (JP 04-300828, already made of record by applicant; abstract only) teach a preventive or therapeutic agent for fatty liver containing a diglyceride, wherein the diglyceride is acylated with C12-C22 saturated fatty acid or unsaturated fatty acid, preferably a compound having an acyl group derived from a C16-C20 unsaturated fatty acid as an active ingredient (abstract). The diglyceride is obtained by transesterification of e.g. a mixture of fats and oils (e.g. rapeseed oil) with glycerol in the presence of an alkali (earth) metallic hydroxide or reacting a lipase with a mixture of a fatty acid or its ester with the glycerol and conducting esterifying reaction (abstract).

Stout et al (US Patent 5,149,851) teach triglycerides of omega-3 fatty acids, including EPA and DHA (abstract). Stout et al. teach that it is highly desirable to provide omega-3 and other methyleninterrupted polyunsaturated fatty acid containing substances having a high reproducible content of specific individual methyleneinterrupted fatty enriched in polyunsaturated fatty acids, alone or with specific monoenoic or short/or medium-chain length fatty acids relatively free of saturated residues, which at best add unnecessary calories and at worst may cause deleterious effects (col. 2, lines 5-15).

Yamada et al. (US Patent 6,261,812) teach a method for efficiently producing high-purity diglycerides using relatively inexpensive fats and oils (e.g. rapeseed oil and fish oil), wherein said method inhibit the deterioration of the oil quality (col. 1, lines 47-56 and col. 2, lines 1-7; see also reference claims 1-8); diglycerides having a purity of 80% or higher can be obtained (col. 3, lines 47-61). The method is also effective in separating fatty acids and monoglycerides as the distillate and obtaining a residue comprising a diglyceride rich composition containing small proportions of triglycerides (col. 3, lines 47-55). Yamada et al. teach C4-C22 atom saturated and unsaturated fatty acid groups and mixed fats and oils (col. 2, lines 1-7).

Taconi (US Patent 6,274,751) teaches wax esters enriched in omega-3 unsaturated fatty acids derived from natural sources such as fish oil, which contain relatively high amounts of polyunsaturated omega-3 fatty acids such as EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) (col. 1, lines 6-63). Taconi teaches that transesterification reaction is best suited to obtain wax esters highly enriched in polyunsaturated fatty acids, but other reactions can give the same products (col. 2, line 66 to col. 3, line 9).

Miyashita et al. (US Patent 5,567,730) teach a method of stabilizing omega-3 unsaturated fatty acid compounds comprising dispersing one or more compounds selected from the group consisting of an omega-3 unsaturated fatty acid, its derivative and an oil and fat containing the omega-3 unsaturated fatty acid or the derivative in an aqueous solution, wherein the omega-3 unsaturated fatty acids include DHA and EPA which have been regarded to be unstable (abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlesworth Rae whose telephone number is 571-272-6029. The examiner can normally be reached between 9 a.m. to 5:30 p.m. Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached at 571-272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 800-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

7 February 2008
CER

/Michael P Woodward/
Supervisory Patent Examiner, Art Unit 1615